

Miller, Walker, and Salmon Basin Plan Project Management Team Meeting

Date: Thursday September 4, 2003

Time: 9:00AM – 12:00PM

Location: City of Burien City Manager's Conference Room

Meeting Summary

Attendees

Dan Bath	City of Burien
Bruce Bennett	King County
Steve Bennett	City of Normandy Park
John Bethel	King County, Geologist
Mason Bowles	King County, Ecologist
Steve Clark	City of Burien
Curt Crawford	King County
Bob Duffner	Port of Seattle
Roger Kuykendall	Gray & Osborne (for the City of Normandy Park)
Mehrdad Moini	WSDOT
Kate Rhoads	King County, Water Quality Scientist
Dale Schroeder	City of SeaTac

Approval of minutes

August 21 PMT Meeting Summary

At the start of the meeting, Curt offered a few clarifications to the August 21, 2003 PMT Meeting Summary. The PMT approved the minutes with Curt's proposed changes. Bruce indicated he would check with Kelly Whiting regarding the formula used to calculate the mitigation of erosive work that was discussed in the minutes. The technical correction, if needed, will be incorporated into the minutes.

Water Quality Presentation and Discussion

Kate Rhoads discussed water quality in the Miller, Walker, and Salmon basins and answered questions from the PMT. She distributed a map showing stormwater sampling locations and a summary of data that have been previously collected. The basin plan will include complete references for all of the data mentioned. Data collected included storm water and sediment samples collected by King County; pesticide samples collected by USGS; fecal coliform, dissolved oxygen, and temperature data collected by Southwest

Action items are highlighted

FINALIZED 9/12/03

Suburban Sewer District; Walker Creek headwater wetland data collected by King County; Ambaum detention pond and Lake Reba detention pond water quality data collected by King County; and data collected by the Port, including its Site-Specific Water Quality Assessment, dissolved oxygen study, and NPDES permit data.

One caveat for all of the data, except those data available from the Port, is that the data are at least 10 years old. Because of that fact, some of the data are not directly comparable to today's water quality standards, especially for metals. At the time the data were collected (with the exception of recent Port data), the water quality standards for metals were based on total metals; today the standard is based on dissolved metals. The standards are roughly comparable, however, so that general conclusions regarding potential water quality problems are likely to be correct. What can't be done accurately is determining whether or not water quality standards are currently being exceeded (except for current Port data). Another caveat is that there is, in general, a lack of good water quality data during base flows. This is not thought to be critical, however, because most pollutant input will occur during storm events when pollutants are washed off of impervious surfaces.

Miller and Walker

For the Miller and Walker basins, the dissolved oxygen and temperature data indicated that these water quality parameters were not a concern, even during base flows. Turbidity and total suspended solids were also generally low. Some fecal coliform measurements were high, but there did not appear to be a discernable pattern of high readings either spatially or temporally. Hydrocarbon pollutant levels were, in general, low, as were pesticide levels (there are no water quality standards for pesticides). Sediment samples did not show much pollution, nor were there any identifiable trends in space or time.

The primary water quality concern in Miller and Walker basins is metal contamination, primarily copper and zinc with some high lead levels also. Zinc is present due to runoff from galvanized materials and tire wear. Copper is primarily from brake wear, although roof treatments for moss control are also a source. Lead is primarily from vehicle use. Areas of high total metals concentrations included Ambaum regional detention pond, which collects stormwater from the commercial area along 1st Avenue S in Burien, and along SR 509. There were also some high metal levels in the inlet, but not the outlet, to Lake Reba.

Water quality recommendations include modifying Ambaum detention pond to provide water quality treatment, retrofitting highways to reduce pollutant loading, and modifying Hermes depression to provide water quality treatment. In addition, small water quality capital improvements could be developed based on the results of a basin water quality monitoring program. Bob mentioned that the Port's new NPDES permit requires that it undertake a baseline water quality monitoring program in conjunction with nearby cities. This information could be used to further define those areas needing additional water quality treatment. Bob also discussed the Port's intention to eliminate all galvanized materials that drain to impervious surfaces, including roofs, light poles, fences, and guard

Action items are highlighted

rails. The Port is changing its construction specifications to reflect the requirement for using stainless steel, aluminum, or painted surfaces instead of galvanized.

In addition to having a basin water quality monitoring program, the PMT also suggested that the partners could look at building regulations prohibiting the use of copper- or zinc-chip composite shingles or require infiltration of roof runoff. Steve C. indicated an interest in seeing the asphalt ditches along 509 retrofitted. Mehrdad indicated that an environmental assessment for the SR 509-518 interchange is just starting and that there may be an opportunity to discuss these water quality concerns as part of that document.

Salmon

Kate indicated that data were available from one storm sample, some sediment samples, and some NPDES samples taken by King County. In addition, there were some data collected by Southwest Suburban Sewer District (fecal coliform, dissolved oxygen, and temperature) and data from 2 Lake Hicks studies conducted by King County. As with Miller and Walker basins, the data were limited and dated. The results were similar to the Miller and Walker basins in that high metals levels in the Salmon Creek basin were the primary water quality issue. In fact, there were even high metal levels found in Salmon Creek. This was surprising to the PMT as most of the stormwater in this basin is routed to the bypass line.

Kate also said that there may be illicit connections near Mallard Lake (Kingston Pond) and recommended an illicit connection study be undertaken for that area. Steve C. suggested that could be a requirement of the franchise agreement for the sewer district or something the county could pay for. Kate stated that the county has done some stormwater source control work in the basin. Ecology is required to prepare a TMDL for Lake Hicks because of its listing on the 303(d) list for phosphorus and fecal coliforms; they are currently preparing the TMDL. In the recent NOAA Fisheries study of pre-spawn mortality among coho, copper and zinc are among the pollutants that are potential causal factors. The Port, Seattle, Bellevue, and King County are continuing to assist in the study.

Kate suggested improving water quality by obtaining more water quality treatment in the wetland systems in the upper watershed, improving treatment from highway runoff, and undertaking more specific water quality improvement projects based on ongoing water quality monitoring.

Discussion of Geology and Ecology

John Bethel and Mason Bowles discussed the current and potential future geologic and ecological condition of the basins. They focused on the Miller and Walker basins because of the greater potential for improvement (in the Salmon basin the by-pass line already does a good job of mitigation for peak flows) and the higher value of the habitat.

Miller and Walker creeks have re-equilibrated to the development that has occurred over the past 50 years. This is not to say that they are in pristine condition, but that the stresses they have experienced and continue to experience are already reflected in their geomorphology. If hydrologic conditions were to remain basically the same as they are

Action items are highlighted

now, the streams would also continue to remain in basically the same condition; no sudden, catastrophic collapses in stream geomorphology or functioning are likely. Past changes in the streams include channel expansion and incision (the streams get wider and deeper) and the abandonment of floodplains. Past erosion has left a substrate that is much coarser than prior to development and, in fact, erosion down to till has occurred in some areas. Because of differences in the amount and type of development in the basins and the type of geology (Miller is mostly till with a ground water basin that is small relative to its surface water basin; Walker is mostly outwash with a ground water basin that is much larger than its surface water basin), Walker is in better condition than Miller.

By decreasing peak flows in the basins, one could decrease the coarseness of the bed material and increase the substrate thickness. This change in bed composition and quantity will help salmon by providing a substrate for more insects that are prey items for salmon and by providing additional spawning areas. Currently, the flows combined with poor water quality are harming the salmon that use the stream (chum, coho, cutthroat). Coho are currently experiencing pre-spawn mortality and their numbers are very low (several hundred returners each year) even though 50,000 fry are being released each year. Also, the B-IBI (benthic index of biotic integrity) shows that the instream insects used as food by salmon are low in numbers and diversity. So, an improvement in water quality combined with a reduction in peak flows should be beneficial. For both Miller and Walker, the single most important improvement in habitat is the restoration of the estuary. It is relatively easy to do, inexpensive, and will have nearly immediate benefits for fish, amphibians, insects, and birds. It can be done under the existing flow regime without adverse impacts, although a further reduction in flows would be desirable. In addition, for Walker it is critical to protect the wetlands near its headwaters.

The PMT then discussed the merits of regional detention vs. using just regulations to achieve flow reductions over time. This is an issue that will need to be discussed at greater length prior to development of basin recommendations.

Invoices

Bruce distributed the most recent invoices for work done in the first half of 2003. In addition, WSDOT and Normandy Park received invoices for their shares of 2002 work.

Cost estimates for public meetings

Bruce distributed cost estimates for the first round of public meetings. Approximately \$4700 will be required for each public meeting (one for Salmon, one for Miller/Walker) to cover King County staff time. Although the public meetings are outside of the scope of work for the basin plan, as per the ILA among the parties, the PMT decided that the use of contingency funds is acceptable, in part because of previously realized cost savings due to elimination of the hydrology consulting contract in lieu of doing another ILA Amendment at this time.

Action items are highlighted

Draft Technical Team findings

Bruce handed out the Technical Team's most recent findings and recommendations regarding hydrology, ecology, and water quality. The PMT will review them and discuss them at a future meeting.

Upcoming Meetings and Schedules

The following meetings are currently scheduled. The September 11 PMT meeting was added based on a review of the schedule and of work that needs to be completed.

Date	Meeting
September 11, 2003	PMT Meeting
September 18, 2003	Executive Committee Meeting
September 25, 2003	Salmon Creek Basin Public Meeting
October 2, 2003	PMT Meeting
October 2, 2003	Miller and Walker Creek Basins Public Meeting
October 16, 2003	Executive Committee Meeting
November 6, 2003	PMT Meeting
November and/or December, 2003	Public Meeting/Open House Round #2
December 4, 2003	PMT Meeting
December 18, 2003	Executive Committee Meeting
January, 2004	POSSIBLE Public Meeting/Open House Round #3

Related Attachments

Draft Technical Team findings	 techteamoutline2.doc C
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Action items are highlighted

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Technical Team draft findings for Salmon, Miller, and Walker basins

Salmon Creek

Goals:

- Maintain current flow regime
- Improve in-stream and riparian habitat but recognize the currently unknown level of salmonid use and the generally low ultimate productivity of the habitat
- Improve water quality in the upper basin and in flows discharging from the by-pass line

Conditions summary and problem identification:

Hydrologic modeling

- By-pass line maintains current peak flows at level comparable to 10% effective impervious land cover; future peak flows mitigated with Level 1 flow control will stay about the same
- Flows during frequent storm events are currently comparable to those under a 10% effective impervious land cover; future flows mitigated with Level 1 flow control will stay about the same
- Base flows are sufficient for most of the stream; base flow in first 100-200 feet of upper reach not sufficient to maintain stream flow at all times, but not a high priority given limited area of problem and steep grade precluding areas of high habitat value

Ecology

- Habitat in upper reach limited
- Middle reach good for salmonids and other species, although salmonid use is undocumented
- Lower reach has significant habitat problems
 - lack of estuary
 - partial fish passage barrier at mouth
 - heavily-armored stream bank
 - culvert under Shorewood Drive

Water Quality

- Data extremely limited
- WQ in stream is likely to be much better than that in by-pass line because stream flow primarily due to groundwater discharge, not surface water input
- WQ in lakes and wetlands poor
- Lake Garrett on 303(d) list for phosphorus and fecal coliforms

Recommendations:

- Maintain current flow regime (roughly equal to 10% effective impervious land cover) by continued use of the by-pass line and implementation of a basin-wide requirement for Level 1 flow control
- Implement low-impact development (LID) requirements if LID will improve water quality
- Undertake the following riparian and in-stream habitat improvements:
 - Improve fish passage at the mouth
 - Install baffles in the Shorewood Drive culvert
 - Reduce armoring and channelization in the lower reach
- Improve water quality in the wetland systems draining to Lake Hicks by increasing dead storage and/or creating separate water quality treatment facilities
- Assess capacity and condition of by-pass line, link with upstream pumping capacity, disconnect beach manhole from service and shorten pipeline so that outfall will be closer to the bank
- Purchase undeveloped properties adjacent to stream
- Conduct community education and develop stream stewardship programs

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Miller Creek

Goals:

- Improve current flow regime to more closely approximate a 10% impervious land coverage
- Improve habitat to increase the productivity of the watershed
- Improve water quality, especially from areas of commercial development

Conditions summary and problem identification:

Hydrology

- Current peak flows significantly above 10% effective impervious level; future peak flows will be reduced below current and will eventually approach the 10% effective impervious level if Level 2 flow control is used
- Flows during frequent storm events are currently above the levels expected under a 10% effective impervious land cover; Level 2 flow control will reduce the flows to more closely approximate a 10% effective impervious land cover
- Base flows are sufficient and are comparable to those expected under a 10% effective impervious land cover; no improvement needed
- LID may be useful if it will lead to improvements in water quality

Ecology

- Habitat from Arbor Lake to northern boundary of Port property is poor – armoring, encroachment
- From northern boundary of Port property to 1st Ave S culvert habitat is good
- 1st Av S culvert is fish passage barrier at some flows, especially for juveniles; Miller Creek regional detention pond is upstream fish passage barrier
- Lack of estuary
- Chum, coho, and cut-throat trout currently use stream; several hundred returning fish per year, potential for much greater numbers; pre-spawn mortality in coho occurring

Water Quality

- Drainage from commercial areas should be treated to reduce pollutant loading to stream
- Poor water quality may be contributing to pre-spawn mortality in coho
- Potential for existing detention facilities to be used for water quality treatment

Recommendations:

- Require Level 2 flow control throughout the basin
- Implement low-impact development (LID) requirements if LID will improve water quality
- Undertake the following habitat improvements:
 - Create an estuary
 - Retrofit 1st Av S culvert with baffles
 - Revegetate riparian zone, remove invasives; add LWD and rock to stream
 - Relocate manhole out of stream or add a riser
 - Modify upper reach to remove armoring and meander stream
 - Improve habitat just downstream of 1st Av S – remove concrete weirs
- Modify Hermes Depression to provide wq treatment
- Construct new regional wq facility at Ambaum Pond
- Purchase undeveloped properties adjacent to stream
- Conduct community education and develop stream stewardship programs

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Walker Creek

Goals:

- Improve current flow regime to more closely approximate a 10% effective impervious land coverage
- Improve habitat to increase the productivity of the watershed
- Protect the existing wetlands near the headwaters of the stream
- Improve water quality, primarily through community education

Conditions summary and problem identification:

Hydrology

- Current peak flows significantly above 10% effective impervious level; future peak flows will be less than current, although still much above 10% impervious level, if Level 1 flow control is used – no advantage to require Level 2 flow control
- Flows during frequent storm events are roughly comparable to those expected under a 10% effective impervious land coverage; Level 1 flow control is sufficient mitigation
- Base flows can be improved by implementing LID basin-wide; there may also be water quality benefits

Ecology

- Headwater wetland and wetland near Des Moines Memorial Drive are large and generally in good condition, provide habitat, flow control, and wq treatment; may need additional protection
- Areas of armoring and encroachment in basin
- Lack of estuary
- Chum, coho, and cut-throat trout currently use stream; several hundred returning fish per year, potential for much greater numbers; pre-spawn mortality in coho occurring

Water Quality

- Poor water quality may be contributing to pre-spawn mortality in coho
- Limited commercial areas and detention facilities, so emphasis should be on community outreach and, potentially, LID

Recommendations:

- Require Level 1 flow control and LID basin-wide
- Protect upper basin wetlands through regulation; purchase if possible
- Undertake the following habitat improvements:
 - Create an estuary
 - Revegetate riparian zone, remove invasives
 - Remove armoring
- Purchase undeveloped properties adjacent to stream
- Conduct community education and develop stream stewardship programs